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THE ENVIRONMENTAL DESIGN & MANAGEMENT (EDM) APPROACH TO CRIME PREVENTION IN RESIDENTIAL ENVIRONMENTS - EXECUTIVE SUMMARY

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ABSTRACT

This study examined the nature and applicability of an approach to preventing crime through modifications to the environments in which it occurs -- the Environmental Design and Management (EDM) approach. While drawing upon various antecedents, such as "defensible space" and "Crime Prevention Through Environmental Design (CPTED)", the EDM approach reflects the most current views on how crime in residential environments can be most effectively prevented, that is, through a balanced combination of strategies aimed at modifying both the design and management of the residential environment. It is primarily because of this equal weighting of design and management components that the EDM approach differs from its antecedents, which placed the greater emphasis on design elements.

The five basic categories of design strategies in the EDM approach are: target-hardening, detection hardware, improving surveillance potential, controlling access and escape, and fostering territoriality and social cohesion. The four groups of management strategies are organized according to the key groups that would be responsible for their implementation: residents, landlords, police, and the community at large. The full report provides a detailed description of the strategies included in each category, and evaluates their likely impact. It also assesses the feasibility of implementing the EDM approach in the recommended manner, which, for each environment in which it is to be implemented, requires first, a careful analysis of the crime problem and contributing environmental factors, and an assessment of the relevant resources available; then selection of the appropriate EDM strategies; and, finally, a substantial degree of involvement of a range of parties concerned with the occurrence of crime in the residential environment involved.

Overall, the report concludes that the EDM approach makes sense, primarily for its emphasis on preventing crime before it occurs; for addressing a variety of factors which influence the occurrence of crime; for treating each environment as a unique situation; and, for involving a range of individuals and groups in crime prevention.

To determine the need and potential for implementing the EDM approach in Canadian residential environments, the study conducted a survey of law enforcement and housing planning and management organizations in 25 major cities. The results of the survey and other related research indicated that rates of the EDM target crimes are increasing in Canada, and that in each of the sample cities there are residential areas and buildings that are clearly perceived as having higher rates of the target crimes than the city norm. The social and physical characteristics identified as being associated with high crime rates varied widely, even within individual cities. The basic conclusions to come out of these findings are first, that there is a need for the EDM approach in selected residential environments in Canada; and second, that the EDM approach is a particularly appropriate response to residential crime in Canada because it acknowledges the differing problems and needs of different environments.

Most of the organizations contacted in the research indicated already having implemented some of the EDM strategies, although not always for direct crime prevention objectives, but there were no cases found where a comprehensive program of EDM strategies had been tailored to the particular needs of individual environments. The study's recommendations are therefore focused on the need for the Federal Government to take an initiating and coordinating role in disseminating information on the EDM approach and in promoting its use among the various groups who should be involved in its implementation -- the general public, planners, architects, developers, and the police. The recommendations stress the importance of addressing the needs of existing housing environments, where there is an existing and known crime problem, but also note that many of the design strategies of the approach can be most effectively, and least expensively, applied in new housing.

Executive Summary

INTRODUCTION

The past two decades have seen considerable attention given to the prevention of crime through modifications to the built environment. The terms most frequently used to describe this approach are "Defensible Space" and "Crime Prevention Through Environmental Design (CPTED)". In this study we have introduced a third term -- the "Environmental Design and Management (EDM) Approach" -- a term which more clearly emphasizes the need to incorporate Management as well as Design strategies in effective crime prevention efforts.

In commissioning this study, the Ministry of the Solicitor General of Canada and the Canada Mortgage and Housing Corporation were interested in investigating: first, how various environmental design and management strategies to prevent residential crime had been applied in other jurisdictions, particularly in the United States and in Britain, and what lessons had been learned from such applications; and second, what was known about residential crime in Canada, with particular reference to the need and potential for implementing environmental design and management strategies.

To answer these broad questions, the study's investigations included three major types of activity: a literature review; a survey of the relevant concerns and experiences of various organizations in major Canadian cities; and, a series of field visits, including interviews with representatives of key organizations, in cities in both the United States and Canada. These investigations addressed the following areas of inquiry:

(1) What is the general state of knowledge about residential crime and the types of settings in which it occurs and, in a broad sense, why and how should consideration be given to the concept of preventing residential crime;

(2) How has the EDM approach evolved in terms of both theory and practice;

(3) What specific strategies are used to prevent residential crime and what is known about their impact;

(4) How can EDM strategies be most effectively implemented, and how can the potential of the EDM approach as a whole be assessed;

(5) What is the residential crime situation in Canada and is there a need for the EDM prevention approach;

(6) What experience have individuals and organizations concerned with the occurrence of residential crime in Canada had with the EDM prevention approach, and what is their attitude regarding its potential; and

(7) What, if anything, should be done about encouraging the use of the EDM approach in Canadian residential settings.

This summary of the study's findings, conclusions, and recommendations will follow the same sequential order.

1. RESIDENTIAL CRIME AND ITS PREVENTION

Crime is a complex phenomenon related to a variety of physical and social factors in the environments in which it occurs. The occurrence of any crime depends on the following conditions being met at one point in time:

- the physical presence of the offender, and the appropriate psychological, social, economic, and physical motivations and abilities of the offender;
- the physical presence of a target (person or object) of crime, and some degree of psychological, social, economic, or physical vulnerability of that person or object;
- a specific physical location for both offender and target to come together, and a lack of physical controls inherent in that location; and,
- the socio-economic environment within which the offender, target, and physical location exist, and a lack of social controls within that environment.

Research into the nature of residential crime[1] is not yet able to identify the role that each of the above conditions plays in the occurrence of crime, let alone how these conditions interact to make a crime more or less probable. The information that has been gathered in this regard has primarily focused on the crime problems and related environmental features of public housing projects in the United States. While these can not be considered typical of all residential environments in North America, the environmental correlates associated with their crime problems must be reviewed since the related research findings have structured the development of EDM prevention strategies.

The social characteristics of residential environments are the major predictors of high or low crime rates. The populations most commonly associated with crime rates (as both victims and offenders) are comprised of low-income, often single-parent, families, with large proportions of juveniles and, occasionally, of elderly residents. These characteristics affect the crime rate by making the resident population both more vulnerable to criminal victimization and more motivated to commit crime.

There are also some key physical characteristics of high-crime residential areas which are considered to facilitate the occurrence of crime by increasing the vulnerability of residents. The physical characteristic most commonly associated with high crime rates in residential environments is the presence of substantial proportions of high density, multiple-family, highrise housing; such housing is considered to make poor distinctions between public and private space, to provide limited security

[1] For the purpose of this study, residential crime includes any of the following crimes when they occur in predominantly residential environments: break and entry (burglary), robbery, theft, motor vehicle theft, vandalism, arson, trespass, indecent assault, rape, and homicide and attempted murder.

features in terms of access restriction and surveillance opportunities, and to exhibit an unattractive and often poorly-maintained appearance. These physical characteristics are considered to reinforce the problems associated with the above social characteristics, thereby increasing the likelihood that residents are perceived as vulnerable by potential offenders.

Crime prevention is considered to be the most practical response to the problems of high-crime environments, mainly because other forms of crime control -- the police, courts, and corrections -- are largely reactive and can therefore only affect a small proportion of the offenders and victims involved in residential crime. Crime prevention is a proactive approach which attempts to make the commission of a crime less likely by changing the motivation of potential offenders, or by requiring more sophisticated skills and tools for the commission of crime, or by removing opportunities for crime. Traditional crime control measures have focused on changing the motivation of the offender and have had limited success in preventing crime. Requiring more sophisticated skills and tools to commit crime is also considered to be of limited value since this can result in engaging society and the offender in a continuing spiral of attack and defense, or in deflecting the potential offender to another target. Opportunity-reduction, however, is a particularly promising approach to crime prevention because it relates to a broad range of crimes and can affect the largest number of potential victims and offenders.

Crime prevention is as equally complex a phenomenon as crime, and instituting a crime prevention program is far from a simple matter. Such a program must consider the possibility that crime may simply be displaced (temporally, tactically, spatially, functionally, and in terms of the target involved). It must also consider the fact that a crime problem is not simply defined by crime rates but is also a function of fear of crime. Although a crime prevention program may decrease crime rates, it may concomitantly increase fear of crime by raising residents' awareness of the crime situation. Finally, crime prevention often must involve many segments of society to be truly effective, since there are limits to where the police can go and how much they can observe, just as there are limits to how much formal policing society can afford. However, it is one thing to allocate responsibility for crime prevention to various groups and another for those groups to accept and fulfill those responsibilities.

All of these issues must be considered in the development of an effective crime prevention program. It is in response to these and related concerns that the Environmental Design and Management approach to crime prevention has evolved.

2. EVOLUTION OF THE ENVIRONMENTAL DESIGN AND MANAGEMENT APPROACH TO CRIME PREVENTION

There has been a distinct difference in how design and management concepts for preventing crime have evolved in the United States and Britain. The United States has emphasized a design approach while Britain has emphasized a management approach. The British emphasis on managing residential environments to prevent crime reflects a longer history with crime prevention in general, and a concern with a particular crime -- vandalism -- which clearly can not be completely 'designed out' of an environment (for example, no amount of improved design can prevent spray-painted graffitti). While British architects and housing authorities have acknowledged the importance of design elements in the crime-environment relationship, they have tended to view the physical design of a residential environment not as a direct determinant of crime, but as a determinant of how well that environment can be managed; it is then the quality of the management (by the landlord, residents, police, and other parties) that determines the vulnerability to crime of a residential environment.

The emphasis on design elements in the United States, particularly in the "defensible space" work of Oscar Newman, came out of a concern with the crime problems of multiple-family, highrise public housing projects. While Newman's early work identified the social characteristics of a residential environment as the prime determinants of high or low crime rates, he is best known for his proposed modifications to the physical environment. Newman was not, however, the first proponent of the concept of designing residential environments to prevent crime. Jane Jacobs' "eyes on the street" concept and Elizabeth Wood's emphasis on design which encouraged social cohesion were two important antecedents of Newman's work. Nevertheless, it was Newman's "defensible space" proposals that stimulated U.S. federal government involvement in this approach to crime prevention. Over the last decade, substantial government funding has been committed to related research and demonstration projects undertaken by Newman, William Brill, Richard Gardiner, and the Westinghouse National Issues Center. Initially, these investigations were expected to provide definitive findings on the effectiveness of various design strategies intended to prevent crime (relating, for example, to restricting access, improving definition of zones of influence, and improving steet lighting). These tests sometimes included attempts to improve the management of the environments being studied (for example, getting residents involved in crime prevention programs, and changing police patrolling practices), but the main emphasis was clearly on the design component.

While these demonstration projects did have an impact on reducing crime, it eventually became clear that they could not provide any clear-cut answers regarding the specific impact of individual design strategies, both because the strategies' individual effects were inextricably mingled and because their effects could not be considered independently of the specific environment in which they occurred. As a result, attention shifted to developing better data bases, for example, through Brill's "vulnerability analysis", which provides guidelines for assessing the social and physical factors that affect a residential environment's vulnerability to crime.

More recently, research in the United States has concentrated on developing a better understanding of the broad environmental factors, such as neighbourhood stability and cohesion, that may be related to crime.

A good example of a program taking into account factors related to the broader social, cultural, and economic environment as well as the physical environment was the Anti-Crime Program implemented by the U.S. Federal Department of Housing and Urban Development in 1978. This program was aimed at reducing crime in public housing environments through a balanced mixture of design and management strategies, all of which were to be developed by the responsible housing authority in consultation with the residents, the police, and other interested parties. Although this program was the victim of budget cuts before its full potential could be demonstrated, it is the closest parallel to what we have in mind with our conception of an EDM approach to crime prevention.

3. STRATEGIES OF THE ENVIRONMENTAL DESIGN AND MANAGEMENT APPROACH

The EDM approach to crime prevention puts equal emphasis on strategies aimed at designing and managing environments to meet a crime prevention objective. In essence, the EDM approach acknowledges that without management strategies which encourage all concerned parties to work together to prevent crime, design strategies can have only limited impact. For example, it does not matter how many surveillance opportunities are designed into an environment if the users of that environment are not motivated to report or otherwise respond to suspicious behaviour.

The design strategies included in the EDM approach are intended to meet various crime prevention objectives. Within each strategy, there may be a range of different design solutions or techniques. Although the full report identifies many of these techniques, it does not discuss them in detail for two reasons: first, these techniques are already well substantiated in the EDM-related literature; and, second, any emphasis on specific techniques would provide an overly detailed view of what is intended to be comprehensive and situation-specific approach to crime prevention.

The design strategies of the EDM approach fall into five (somewhat overlapping) categories:

- Target-Hardening
- Detection Hardware
- Improving Surveillance Potential
- Controlling Access and Escape, and
- Fostering Territoriality and Social Cohesion.

The following is a brief description of the strategies included in each of these categories.

3.1 DESIGN STRATEGIES

3.1.1 Target-Hardening

i. Increasing the difficulty of illegal access to residential buildings or units through mechanical means such as improved locks.

ii. Using vandal-resistant materials to decrease the likelihood and seriousness of vandalism.

3.1.2 Detection Hardware

i. Using alarms to increase the difficulty of undetected illegal access.

ii. Using cameras to increase surveillance potential.

3.1.3 Improving Surveillance Potential

i. Reducing concealment opportunities, for example, by avoiding the use of blind corridors, and of alcoves in corridors, lobbies and parking garages.

ii. Improving lighting in both the exterior areas around a residential building and in such shared interior spaces as parking garages.

iii. Improving placement of windows to provide surveillance opportunities from major activity areas such as the kitchen and family room of a single-family dwelling or the laundry rooms and stairwells of multiple-family structures.

iv. Improving visibility of locations for indoor and outdoor resident services and facilities, for example, by locating facilities such as laundry rooms, mail rooms and parking areas of multiple-family buildings where there is good potential for formal and informal surveillance both into and from these spaces.

v. Increasing pedestrian and street traffic to increase the "eyes on the street" or the informal surveillance capability of the environment.

3.1.4 Controlling Access and Escape

i. Controlling access to and escape from the general area to decrease the likelihood that potential criminals will be able either to familiarize themselves with an area or to enter or leave that area undetected (for example, by using restricted street layouts such as cul-de-sacs).

ii. Using real or symbolic barriers to control ciculation within an area through the use of landscaping, fencing and other elements which define where public space ends and residents' semi-private or private space begins.

iii. Improving ease and speed of response to crime, for example, through improvements in the identification of dwelling units and in lighting.

3.1.5 Fostering Territoriality and Social Cohesion

i. Clustering dwelling units to reduce the anonymity associated with large multiple-family buildings by decreasing the number of families using one single entry, lobby, and set of elevators.

ii. Distinguishing between resident and non-resident space and reducing conflicting uses both to make residents more known to each other and therefore more alert to the presence of strangers, and to reduce the likelihood of conflicts between residents.

iii. Reducing differentiation between residential developments and the surrounding community to ensure that specific developments are not perceived as distinct and separate targets for crime and to develop a broader sense of neighbourhood community among individual residential developments.

The objectives and proposed effects of these design strategies of the EDM approach blend inextricably with those of the management strategies. Without management strategies directed to drawing the goal of crime prevention to the attention of residents, landlords, police, and the community at large, design strategies can have only very limited effects.

3.2 MANAGEMENT STRATEGIES

3.2.1 Resident

i. Education programs through which residents can obtain advice on crime prevention measures which they can undertake.

ii. Resident and community surveillance programs through which residents keep an eye on their neighbourhood in an organized manner (for example, through community patrols).

iii. Self-help programs including both organized services (escort services, hot-line security services, and apartment-watch), and behavioural restrictions which individual residents undertake to make themselves less vulnerable to crime.

iv. Resident/tenant associations which develop organized resident groups that may be a prerequisite for the successful undertaking of other resident strategies.

3.2.2 Landlord

i. Private security personnel to increase formal security surveillance in semi-private areas where police tend to go only when there is an immediate need.

ii. Improved building image and maintenance to improve a residential environment's appearance because vandalised property tends to invite further vandalism and because shoddy and unattractive environments do not encourage residents to feel concern about what goes on there.

iii. Improved rental and eviction policies to weed out potential trouble-makers or criminals and develop social cohesion among residents by avoiding mixes of potentially incompatible residents (for example, elderly and teenagers).

3.2.3 Police

i. Consultation and liaison with planning/housing authorities to ensure that police expertise with regard to the design elements that facilitate crime is available and applied at the early stages of planning for new residential developments.

ii. Public relations programs to encourage residents to report crimes, and to ensure that the strengths and limitations of the police in a crime prevention program are clearly understood by all concerned.

iii. Team or neighbourhood policing to create a greater knowledge of a patrol area among the officers responsible for that area, to encourage interaction between the police and the residents of an area, and to make police input to other crime prevention strategies more sensitive to the needs of a particular environment.

iv. Security surveys and inspection programs to help residents identify and safeguard the vulnerable areas of individual dwellings or dwelling units.

v. Operation Identification.

3.2.4 Community

i. Improved recreational facilities and programs to decrease anonymity and to reduce juvenile involvement in crime by directing their energies to pro-social activities.

ii. Improved social services and crisis intervention services to help ease some of the economic, emotional, or other pressures that are possible contributing factors in motivating residents to commit crime or making them more vulnerable to victimization.

Unfortunately, the likely impact of the above strategies is largely a matter of conjecture; there is little empirical verification of their specific effects on crime. Those strategies which are supported by the findings of related research are those which are the least complex in theoretical terms -- for example, target-hardening and improving lighting. One of the major problems in evaluating the impact of individual strategies derives from the fact that they are rarely implemented on their own, and it is therefore difficult to separate their specific effects. Further, their impact can vary depending on the nature of the specific environment where they are implemented. These points are very important considerations in the implementation of EDM strategies.

4. IMPLEMENTATION AND ASSESSMENT OF THE EDM APPROACH

Beyond the need to use both design and management strategies to prevent crime effectively, the second most important point about the EDM approach is that it probably should be applied differently in different environments. Each application should be custom tailored to the particular crime problems in specific environments. A basic implication of this point is that no one set of rules for implementing the EDM approach can be developed for all environments. The EDM approach is instead a philosophy of crime prevention providing general guidelines with regard to the types of actions that can be taken to address particular crime problems.

The first step in implementing the EDM approach in a given residential environment is to analyse the crime problem and to identify the environmental factors that are considered to be related to that problem. It is only then that the need for specific strategies can be identified. The final selection of the strategies to be implemented and the precise design techniques to be used depends on the financial, human, and other resources available and on a range of other objectives (for example, aesthetic and privacy objectives). A major reason that the EDM approach purposely avoids providing a set of rules for implementing strategies is related to the fact that many strategies can conflict with each other or with other objectives. For example, strategies directed to controlling access and escape can conflict with those intending to improve the surveillance potential of an environment, and target-hardening strategies may conflict with fire safety design objectives. In such cases, trade-offs will need to be made, depending on which objectives are most important.

The implementation of an EDM crime prevention program will also vary depending on whether the environment involved is a new or existing residential development -- each provides different opportunities and constraints. While many of the design strategies can be costly to implement in existing residential environments, they can involve little or no extra cost if they are considered early in the planning of new housing. On the other hand, implementation of the management strategies is almost entirely focused on existing environments where there is a resident population and a police force that can be involved in developing and applying the appropriate management strategies.

These are the key points relating to the optimum implementation of the EDM approach. However, in order for the relevant organizations to commit themselves to the detailed planning and implementation process required of the approach, it is likely they will want some evidence that their efforts will be rewarded by a reduction in crime. Assessing the potential impact of an EDM crime prevention program is, however, virtually impossible given the current limited knowledge about crime and its environmental correlates. All that can be said is that the EDM approach makes sense -- with regards to its focus on preventing crime before it occurs; reducing the opportunities for crime presented by various social and physical features of residential environments; involving a range of groups in its planning and application; and, in many cases, potentially improving the general quality of life in residential environments as part of its crime prevention objective.

Given this conclusion, the question is whether there is a need for this approach to crime prevention in Canadian residential environments.

5. RESIDENTIAL CRIME IN CANADA

While crime-recording practices make it difficult to separate data on crimes occurring in residential environments from those on all crime occurrences, it appears that Canadian rates of residential crime, particularly break and entry, are increasing more quickly than the rates of almost any other crime category. While the currently available data are not definitive on this matter, they suggest that residential crime is a particular concern in metropolitan areas in the western region of Canada, areas which are undergoing rapid growth and social change.

This is not to say that residential crime is not evident in other metropolitan centres in Canada. All the cities included in our study had residential areas that could be identified as having higher crime rates than the norm, at least according to the perceptions of the relevant police forces. Many public and private sector landlords could also identify specific residential properties which were perceived to have high crime rates. Given the lack of reliable data on the characteristics of these high-crime areas and buildings, our findings are primarily based on the perceptions of representatives of law enforcement and housing organizations. On an aggregate level, these perceptions indicate that there are some physical and social features common to many high-crime residential environments in Canada. The physical features most commonly identified were multiple-family housing, non-residential land uses (such as major traffic arteries) either nearby or within the residential area, and poor surveillance opportunities. In terms of the social environment, high-crime areas and buildings were most frequently perceived as having low-income populations with substantial proportions of juveniles.

These characteristics can not, however, be taken as accurate predictors of all high-crime residential environments in Canada, since there were a number of cases in which every other possible permutation of physical and social characteristics was identified as being associated with high crime rates, including single-family housing and high-income populations. We have therefore concluded that high-crime residential environments in Canada can not be as neatly categorized as in the United States. We have also concluded that given the variety of characteristics exhibited by high-crime residential environments in this country, the situation-specific EDM approach would be the most appropriate response to these environments' crime problems.

However, it is not enough to identify the EDM approach as appropriate; there must also be a clear need for it. The comments and responses of the representatives of the organizations included in our investigations indicated that they perceived a crime problem, and supposedly a need for crime prevention, in some areas in their jurisdictions. They could not identify whether the residents of these areas, whose involvement is critical to the EDM approach, had similar perceptions. In a few jurisdictions, we found examples of residents organizing themselves because of crime-related concerns. In addition, several national surveys have indicated that crime is considered to be a major public issue affecting a substantial proportion of the Canadian population. Nevertheless, individual citizens or resident groups have not initiated much action because of their concern with crime and it is difficult to say the general populace perceives a need for crime prevention in general, let alone the comprehensive EDM approach to crime prevention.

6. CANADIAN EXPERIENCES AND ATTITUDES REGARDING THE EDM APPROACH

Many of the representatives of the law enforcement, housing, and planning organizations we contacted in our research appear to have had substantial experience with some of the EDM strategies, particularly those relating to target-hardening, improving surveillance potential, and police strategies such as security surveys and Operation Identification. In many cases in the planning and housing fields, this experience was not the result of crime prevention objectives but part of an effort to improve the overall quality of residential environments. Not surprisingly, those EDM strategies most familiar to the law enforcement organizations were the least familiar to planning and housing organizations, and vice-versa.

The fact that the various organizations had not had experience with implementing some of the EDM strategies did not, however, appear to condition their judgments of the potential effectiveness of these strategies; in many cases, the organizations involved gave high effectiveness ratings to strategies with which they were completely inexperienced. Overall, the EDM strategies considered to have the highest potential effectiveness for preventing a range of crimes were those related to target-hardening, improving surveillance potential, resident education and involvement, and police programs. These strategies are the least complex (in theoretical and practical terms) of all the EDM strategies, and can be the least expensive to implement.

We can only postulate how the EDM approach as a whole is likely to be viewed by the organizations and individuals who would need to be involved in its implementation, since none of these have had experience with the approach as a whole. While responses regarding the EDM approach ranged from uninterested to extremely enthusiastic, a common thread consistently appeared. The EDM approach, and crime prevention in general, must take its place in line with a range of priorities relating to the design and management of residential environments. In essence, many organizations appeared to be saying 'show us it is worth our while to follow this through'.

Experience in other jurisdictions suggests that the best way to do so is to emphasize the costs incurred by crime -- to landlords, residents, and entire municipalities. The fact that in 1981 crime in Canada cost $1.3 billion in insurance payments could be a starting point for illustrating the potential costs involved in not undertaking crime prevention measures.

7. RECOMMENDATIONS REGARDING THE IMPLEMENTATION OF THE EDM APPROACH IN CANADIAN RESIDENTIAL ENVIRONMENTS

The major thrust of our recommendations on implementing the EDM approach in Canadian residential environments assumes: first, that there is a need for information on the potential of this approach to crime prevention; and second, that the Federal Government is the most appropriate agency to fulfill this need. - We therefore recommend that the Federal Government take a lead role in disseminating information on the EDM approach to the various groups that would be involved in its implementation: the general public, police forces, private security agencies, architects and planners (including municipal planning officials), developers (private, public and non-profit), and housing managers. This information dissemination can be undertaken through various media including brochures and workshop sessions.

Further, we recommend that the Federal Government consider instituting a program which provides guidance and financial assistance for the implementation of the EDM approach in residential environments where there is a demonstrated need, willingness, and ability to develop and implement an EDM program for the purpose of reducing the target crimes. We would recommend that this program be responsive and not directive, because we do not believe there is any practical way for government to determine or measure relative need on a national basis.

We also recommend, as part of this implementation program, that the participants be encouraged to undertake research relating to such issues as: spatial, temporal or technological displacement; the extent to which particular crimes can be defined as 'crimes of opportunity'; the environmental stimuli that affect a potential offender's perception of whether or not a particular environment is vulnerable; and the most effective means of maintaining the interest and involvement of the residents and management of a residential environment in working to prevent crime in their communities.

In addition, we recommend that the Federal Government provide guidance and increased resources to police forces which indicate an interest in implementing the EDM approach and in collecting the types of information on crime occurrences which are relevant to that approach, particularly on specific locational characteristics of criminal acts in residential environments.

Finally, we recommend that the Federal Government give serious consideration to incorporating a target-hardening section for crime prevention purposes in the National Building Code and to encouraging the National Research Council to develop appropriate performance standards for secure locks, doors and windows in residential structures.